

**ABSTRACT OF DISCLOSURE:**

The invention concerns a method for extracting a geological horizon and related properties of a seismic representation, comprising a step (100) which consists in digital modeling with continuous local seismic traces, calculating the optimal offset and defining a conditional neighbourhood of a reference central continuous local seismic trace; a step (101) which consists in defining a two-dimensional matrix whereof the line and column indices correspond to the coordinates of the geophones; a third step (102) which consists in selecting a seed point; a fourth step (103) which consists in determining the point vertically closest to the seed point and a fifth step (104) which consists in assigning to the point  $P(p,q,t)$  the value  $P(p,q,t+h_{ij,pq,k})$ , where  $h_{ij,pq,k}$  is optimal offset of the neighbouring point  $P(i,j,k)$ , so as to estimate the related properties of the conditional neighbourhood thereby filling the two-dimensional extraction matrix of step (101).